PART U-3
OTHER HAZARDOUS MATERIALS
DIPPING AND COATING OPERATIONS (DIP TANKS)

WAC 296-307-445 Scope.

IMPORTANT:

A **dip tank** is a container holding a liquid other than plain water that is used for dipping or coating. An object may be completely or partially immersed (in a dip tank) or it may be suspended in a vapor coming from the tank.

Exemption: Dip tanks that use a molten material (molten metal, alloy, salt, etc.) aren't covered by this chapter.

This chapter **applies** to:

- A dip tank that uses a liquid other than plain water, or the vapor of the liquid, to:
  - Clean an object
  - Coat an object

WAC 296-307-445 (Cont.)

- Alter the surface of an object
  OR
- Change the character of an object.

- Draining or drying an object that has been dipped or coated.

Examples of covered dipping and coating operations include, but aren't limited to:

- Paint dipping
- Anodizing
- Pickling
- Quenching
- Tanning
- Degreasing
- Stripping
- Cleaning
- Dyeing.

Reference: You have to do a hazard assessment to identify hazards or potential hazards in your workplace and determine if PPE is necessary to protect your employees. See Personal Protective Equipment (PPE), WAC 296-307-100 through 296-307-10025.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-445, filed 05/06/03, effective 08/01/03.

WAC 296-307-450 General requirements.

Summary.

Your responsibility:

Safeguard employees working with dip tanks.

You must:

CONSTRUCTION

Construct safe dip tanks
WAC 296-307-45005

VENTILATION

Provide proper ventilation for the vapor area
WAC 296-307-45010

Take additional precautions if you recirculate ventilation system exhaust air into the workplace
WAC 296-307-45015

Take additional precautions when using an exhaust hood
WAC 296-307-45020

WAC 296-307-450 (Cont.)

INSPECTION

Periodically inspect your dip tanks and associated equipment and correct any deficiencies
WAC 296-307-45025

FIRST AID

Make sure employees working near dip tanks know appropriate first-aid procedures
WAC 296-307-45030

CLEANING

Prepare dip tanks before cleaning
WAC 296-307-45035

WELDING

Protect employees during welding, burning or other work using open flames
WAC 296-307-45045

LIQUIDS HARMFUL TO SKIN

Provide additional protection for employees working near dip tanks that use liquid that may burn, irritate, or otherwise harm the skin
WAC 296-307-45050.
[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-450, filed 05/06/03, effective 08/01/03. Recodified as § 296-307-450. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-450, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45005 Construct safe dip tanks.

You must:

- Make sure dip tanks, including any drain boards, are strong enough to support the expected load.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45005, filed 05/06/03, effective 08/01/03. Recodified as § 296-307-45005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-45005, filed 10/31/96, effective 12/1/96.]

VENTILATION

WAC 296-307-45010 Provide proper ventilation for the vapor area.

You must:

- Make sure mechanical ventilation meets the requirements of one or more of the following standards:
  - NFPA 34-1995, Standard for Dipping and Coating Processes Using Flammable or Combustible Liquids
  - ACGIH's "Industrial Ventilation: A Manual of Recommended Practice" (22nd ed., 1995)
  - ANSI Z9.1-1971, Practices for Ventilation and Operation of Open-Surface Tanks and ANSI Z9.2-1979, Fundamentals Governing the Design and Operation of Local Exhaust Systems.

WAC 296-307-45010 (Cont.)

Note: Some, or all, of the consensus standards (such as ANSI and NFPA) may have been revised. If you comply with a later version of a consensus standard, you will be considered to have complied with any previous version of the same consensus standard.

You must:

- Limit the vapor area to the smallest practical space by using mechanical ventilation
- Keep airborne concentration of any substance below 25 percent of its lower flammable limit (LFL)
- Make sure mechanical ventilation draws the flow of air into a hood or exhaust duct
- Have a separate exhaust system for each dip tank if the combination of substances being removed could cause a:

  - Fire
  - Explosion

  OR

  - Potentially hazardous chemical reaction.

Reference: You need to keep employee exposure within safe levels when the liquid in a dip tank creates an exposure hazard. See Respiratory hazards, chapter 296-307 WAC, Part Y-6

Note: You may use a tank cover or material that floats on the surface of the liquid to replace or assist ventilation. The method or combination of methods you choose has to maintain the airborne concentration of the hazardous material and the employee's exposure within safe limits.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-45010, filed 12/21/04, effective 04/02/05. Statutory Authority: RCW 49.17.010, .040, .050, and .060 Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45010, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45015 Take additional precautions if you recirculate ventilation system exhaust air into the workplace.

You must:

- Only recirculate air that contains no substance at a concentration that could pose a health or safety hazard to employees
- Make sure any exhaust system that recirculates air into the workplace:

  - Passes the air through a device that removes contaminants
  - Sounds an alarm and automatically shuts down the dip tank operation, if the vapor concentration of any substance in the exhaust air exceeds 25 percent of its LEL
  - Monitors the concentration of vapor from flammable or combustible liquids with approved equipment.

Note:

- The LEL concentration in the air must be determined after the air passes through the air-cleaning device and before the air reenters the workplace
- Most substances will pose a health hazard at a concentration far below 25 percent of its LEL.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45015, filed 05/06/03, effective 08/01/03. Recodified as § 296-307-45015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-45015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45020 Take additional precautions when using an exhaust hood.

You must:

- Make sure each room with an exhaust hood has a source of outside air that:
  - Enters the room in a way that won't interfere with the function of the hood
  - Replaces at least 90 percent of the air taken in through the hood.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45020, filed 05/06/03, effective 08/01/03.

WAC 296-307-45025 Periodically inspect your dip tanks and associated equipment and correct any deficiencies.

You must:

- Inspect or test your dip tanks and associated equipment periodically, including:
  - Covers
  - Overflow pipes
  - Bottom drains and valves
  - Electrical wiring, equipment, and grounding connections
  - Ventilating systems
  - Fire extinguisher equipment.
- Inspect the hoods and ductwork of the ventilation system for corrosion and damage to make sure the air flow is adequate:
  - At least quarterly during operation
  - Prior to operation after a prolonged shutdown.
- Promptly fix any deficiencies found.

Note:

- To assist you in tracking your inspections and actions taken from those inspections, you may want to keep a written record.
- It is recommended that inspections be at least quarterly even if the system isn't operating. Depending on the chemicals in use more frequent inspection may be required.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45025, filed 05/06/03, effective 08/01/03. Recodified as § 296-307-45025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-45025, filed 10/31/96, effective 12/1/96.]

FIRST AID

WAC 296-307-45030 Make sure employees working near dip tanks know appropriate first-aid procedures.

You must:

- Make sure your employees know the appropriate first-aid procedures for the hazards of your dipping and coating operations.

Note:

- First-aid procedures are contained in the material safety data sheet (MSDS) for the chemicals used in the dip tank

WAC 296-307-45030 (Cont.)

- First-aid supplies appropriate for the hazards of the dipping or coating operation need to be located near the dip tank to be considered "readily available" as required by WAC 296-307-03920.

Reference: There are additional requirements that may include providing emergency washing facilities and employee training. See First Aid, WAC 296-307-039, and Employer Chemical Hazard Communication, WAC 296-307-550.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45030, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45035 Prepare dip tanks before cleaning.

You must:

(1) Drain the contents of the tank and open any cleanout doors.

(2) Ventilate the tank to clear any accumulated hazardous vapors.

Reference: There may be requirements that apply before an employee enters a dip tank. See Confined spaces, WAC 296-307-642 and safety procedures, WAC 296-307-320.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-45035, filed 12/21/04, effective 04/02/05. Statutory Authority: RCW 49.17.010, .040, .050, and .060. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45035, filed 05/06/03, effective 08/01/03.]

WELDING

WAC 296-307-45045 Protect employees during welding, burning, or other work using open flames.

You must:

- Make sure the dip tank and the area around it are thoroughly cleaned of solvents and vapors before performing work involving:

  - Welding
  - Burning

  OR

  - Open flames.

Reference: There are additional requirements for this type of work. See Welding, cutting and brazing, WAC 296-307-475, and Respirators, chapter 296-307 WAC, Part Y-5.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-45035, filed 12/21/04, effective 04/02/05. Statutory Authority: RCW 49.17.010, .040, .050, and .060. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45045, filed 05/06/03, effective 08/01/03.]

LIQUIDS HARMFUL TO SKIN

WAC 296-307-45050 Protect employees that use liquids that may burn, irritate, or otherwise harm the skin.

You must:

(1) Make sure washing facilities, including hot water, are available for every 10 employees that work with dip tank liquids.

(2) Satisfy medical requirements:

- Make sure an employee with any small skin abrasion, cut, rash, or open sore receives treatment by a properly designated person

WAC 296-307-45050 (Cont.)

- Make sure an employee with a sore, burn, or other skin lesion that needs medical treatment, has a physician's approval before they perform their regular work
- Make sure employees who work with chromic acid receive periodic examinations of their exposed body parts, especially their nostrils.

Note:

- Periodic means on a yearly basis unless otherwise indicated
- Any time chromic acid spills onto an employee's skin or their clothing is saturated, a physician should be responsible for evaluating and monitoring the area where chromic acid made contact with the skin.

You must:

(3) Provide lockers or other storage space to prevent contamination of street clothes.

Reference: You have to do a hazard assessment to identify hazards or potential hazards in your workplace and determine if PPE is necessary to protect your employees. See Personal Protective Equipment (PPE), WAC 296-307-100.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45050, filed 05/06/03, effective 08/01/03.]

WAC 296-307-455 Additional requirements for dip tanks using flammable or combustible liquids.

Summary.

IMPORTANT:

This section applies to:

- Flammable and combustible liquids (flashpoint below 200°F)
- Liquids that have a flashpoint of 200°F (93.3°C) or higher if you:
  - Heat the liquid
  - Dip a heated object in the tank

Your responsibility:

Safeguard employees working with dip tanks containing flammable or combustible liquids.

You must:

CONSTRUCTION

Include additional safeguards when constructing dip tanks
WAC 296-307-45505

Provide overflow pipes
WAC 296-307-45510

WAC 296-307-455 (Cont.)

Provide bottom drains
WAC 296-307-45515

FIRE PROTECTION

Provide fire protection in the vapor area
WAC 296-307-45520

Provide additional fire protection for large dip tanks
WAC 296-307-45525

ELECTRICAL WIRING AND EQUIPMENT AND SOURCES OF IGNITION

Prevent static electricity sparks or arcs when adding liquids to a dip tank
WAC 296-307-45535

Control ignition sources
WAC 296-307-45540

Provide safe wiring and electrical equipment where the liquid can drip or splash
WAC 296-307-45545

HOUSEKEEPING

Keep the area around dip tanks clear of combustible material and properly dispose of waste
WAC 296-307-45550

HEATING LIQUID

Make sure heating the liquid in your dip tanks doesn't cause a fire
WAC 296-307-45555

HEAT DRYING

Make sure a heating system used for drying objects doesn't cause a fire
WAC 296-307-45560

CONVEYORS

Make sure the conveyor system for dip tanks is safe
WAC 296-307-45565

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-455, filed 05/06/03, effective 08/01/03.]

CONSTRUCTION

WAC 296-307-45505 Include additional safeguards when constructing dip tanks.

You must:

(1) Make sure the dip tank, drain boards (if provided), and supports are made of noncombustible material.

(2) Make sure piping connections on drains and overflow pipes allow easy access to the inside of the pipe for inspection and cleaning.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45505, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45510 Provide overflow pipes.

You must:

- Provide an overflow pipe on dip tanks that:
  - Hold more than 150 gallons of liquid
    OR
  - Have more than 10 square feet of liquid surface area.
- Make sure the overflow pipe is:
  - Properly trapped
  - Able to prevent the dip tank from overflowing
  - 3 inches or more (7.6 cm) in diameter
  - Discharged to a safe location.

Note: Discharged to a safe location could be a:

- Safe location outside the building
  OR
- Closed, properly vented salvage tank or tanks that can hold more than the dip tank.

You must:

- Make sure the bottom of the overflow pipe is at least 6 inches (15.2 cm) below the top of the tank.

Note: The overflow pipe should be large enough to remove water applied to the liquid surface of the dip tank from automatic sprinklers or other sources in the event of fire. Smaller dip tanks should be equipped with overflow pipes, if practical.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45510, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45515 Provide bottom drains.

Exemption: A bottom drain isn't required if:

- The viscosity of the liquid makes it impractical to empty the tank by gravity or pumping
  OR
- The dip tank has an automatic closing cover that meets the requirements of WAC 296-307-45530.

WAC 296-307-45515 (Cont.)

You must:

- Provide a bottom drain on all dip tanks that hold more than 500 gallons of liquid
- Make sure the bottom drain:

  - Is properly trapped
  - Will empty the dip tank during a fire
  - Has pipes large enough to empty the tank within 5 minutes
  - Uses automatic pumps if gravity draining isn't practical
  - Is capable of both manual and automatic operation
  - Discharges to a safe location.

Note: Discharges to a safe location could be a:

- Safe location outside the building
  OR
- Closed, properly vented salvage tank or tanks that can hold more than the dip tank.

You must:

- Make sure manual operation of the bottom drain is performed from a safe and easily accessible location.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45515, filed 05/06/03, effective 08/01/03.]

FIRE PROTECTION

WAC 296-307-45520 Provide fire protection in the vapor area.

You must:

- Provide a manual fire extinguisher near the tank that is suitable for putting out flammable and combustible liquid fires.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45520, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45525 Provide additional fire protection for large dip tanks.

You must:

- Provide at least one automatic fire extinguishing system or an automatic dip tank cover if the tank:

  - Holds 150 gallons or more of liquid
    OR
  - Has 4 square feet or more of liquid surface area.

- Make sure automatic fire extinguishing systems or automatic dip tank covers meet the requirements of Table 1.

Exemption: An automatic fire extinguishing system or an automatic dip tank cover is **not** required for a hardening or tempering tank that:

WAC 296-307-45525 (Cont.)

- Holds less than 500 gallons
  OR
- Has less than 25 square feet of liquid surface area.

Table 1: Automatic Fire Protection System Requirements

If you provide:	Then you must:
An automatic fire extinguishing system	• Use extinguishing materials suitable for a fire fueled by the liquid in the tank • Make sure the system protects the: - Tanks - Drain boards - Stock over drain boards
A dip tank cover	• Make sure the cover is: - Closed by approved automatic devices in the event of fire - Able to be manually activated - Kept closed when the tank isn't being used - Made of noncombustible material or metal-clad material with locked metal joints.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45525, filed 05/06/03, effective 08/01/03.]

ELECTRICAL WIRING AND EQUIPMENT AND SOURCES OF IGNITION

WAC 296-307-45535 Prevent static electricity sparks or arcs when adding liquids to a dip tank.

You must:

- Make sure any portable container used to add liquid to the tank is:

  - Electrically bonded to the dip tank
  - Positively grounded.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45535, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45540 Control ignition sources.

You must:

(1) Make sure the vapor areas and adjacent areas don't have any:

- Open flames
- Spark producing devices
- Heated surfaces hot enough to ignite vapors.

(2) Use explosion-proof wiring and equipment in the vapor area.

Reference: Electrical wiring and equipment has to meet the requirements of the applicable hazardous (classified) location. See Hazardous (Classified) Locations, WAC 296-307-37209.

WAC 296-307-45540 (Cont.)

You must:

(3) Prohibit smoking in any vapor area:

- Post an easily seen "NO SMOKING" sign near each dip tank.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45540, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45545 Provide safe electrical wiring and equipment where the liquid can drip or splash.

You must:

- Make sure all electrical wiring and equipment in the vapor area is approved for areas that have:
  - Deposits of easily ignited residue
  - Explosive vapor.

Exemption: This doesn't apply to wiring that is:

- In rigid conduit, threaded boxes or fittings
- Has no taps, splices, or terminal connections.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45545, filed 05/06/03, effective 08/01/03.]

HOUSEKEEPING

WAC 296-307-45550 Keep the area around dip tanks clear of combustible material and properly dispose of waste.

You must:

(1) Make sure the area surrounding dip tanks is:

- Completely free of combustible debris
- As free of combustible stock as possible.

(2) Provide approved metal waste cans that are:

- Used for immediate disposal of rags and other material contaminated with liquids from dipping or coating operations
- Emptied and the contents properly disposed of at the end of each shift.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45550, filed 05/06/03, effective 08/01/03.]

HEATING LIQUID

WAC 296-307-45555 Make sure heating the liquid in your dip tanks does not cause a fire.

You must:

- Keep the temperature of the liquid in the dip tank:
  - Below the liquid's boiling point
  - At least 100°F below the liquid's autoignition temperature.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45555, filed 05/06/03, effective 08/01/03.]

HEAT DRYING

WAC 296-307-45560 Make sure a heating system used for drying objects doesn't cause a fire.

You must:

- Make sure the heating system used in a drying operation that could cause ignition:

  - Has adequate mechanical ventilation that operates before and during the drying operation
  - Shuts down automatically if a ventilating fan fails to maintain adequate ventilation
  - Is installed as required by NFPA 86-1999, Standard for Ovens and Furnaces.

Note: Some, or all, of the consensus standards (such as ANSI and NFPA) may have been revised. If you comply with a later version of a consensus standard, you will be considered to have complied with any previous version of the same consensus standard.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45560, filed 05/06/03, effective 08/01/03.]

CONVEYORS

WAC 296-307-45565 Make sure conveyor systems are safe.

You must:

- Make sure the conveyor system shuts down automatically if:

  - The ventilation system fails to maintain adequate ventilation
    OR
  - There is a fire.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45565, filed 05/06/03, effective 08/01/03.]

WAC 296-307-460 Additional requirements for dip tanks used for specific processes.

Summary.

Your responsibility:

Safeguard employees working with dip tanks used for specific processes.

You must:

HARDENING OR TEMPERING

Meet specific requirements if you use a hardening or tempering tank
WAC 296-307-46005

VAPOR DEGREASING

Provide additional safeguards for vapor degreasing tanks
WAC 296-307-46025

SPRAY CLEANING OR DEGREASING

Control liquid spray over an open surface cleaning or degreasing tank
WAC 296-307-46030.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-460, filed 05/06/03, effective 08/01/03.]

HARDENING OR TEMPERING

WAC 296-307-46005 Meet specific requirements if you use a hardening or tempering tank.

You must:

(1) Provide an automatic fire extinguishing system or an automatic dip tank cover for any hardening and tempering tank that uses flammable or combustible liquids and:

- Holds 500 gallons (1893 L) or more of liquid
  OR
- Has 25 square feet (2.37 m^2) or more of liquid surface area.

(2) Prevent fires.

- Make sure hardening and tempering tanks are:
  - **Not** located on or near combustible flooring
  - Located as far away as practical from furnaces
  - Equipped with noncombustible hoods and vents (or equally effective devices) for venting to the outside.
- Treat vent ducts as flues and keep them away from combustible material, particularly roofs.

(3) Make sure air under pressure isn't used to:

- Fill the tank
  OR
- Agitate the liquid in the tank.

(4) Equip each tank with an alarm that will sound when the temperature is within 50°F (10°C) of the liquid's flashpoint (alarm set point).

(5) Make sure a limit switch shuts down conveyors supplying work to the tank when the temperature reaches the alarm setpoint, if operationally practical.

(6) Have a circulating cooling system if the temperature of the liquid can exceed the alarm set point.

Note: The bottom drain of the tank may be combined with the oil circulating system if the requirements for bottom drains in WAC 296-307-45515 are satisfied.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-46005, filed 05/06/03, effective 08/01/03.]

VAPOR DEGREASING

WAC 296-307-46025 Provide additional safeguards for vapor degreasing tanks.

You must:

(1) Make sure, if the tank has a condenser or a vapor-level thermostat, that it keeps the vapor level at least:

- 36 inches (91 cm) below the top of the tank if the width of the tank is 72 inches or more
  OR
- 1/2 the tank width below the top of the tank if the tank is less than 72 inches wide.

WAC 296-307-46025 (Cont.)

(2) Make sure, if you use gas as a fuel to heat the tank liquid, that the combustion chamber is airtight (except for the flue opening) to prevent solvent vapors from entering the air-fuel mixture.

(3) Make sure the exhaust flue:

- Is made of corrosion-resistant material
- Extends to the outside
- Has a draft diverter if mechanical exhaust is used.

(4) Take special precautions to keep solvent vapors from mixing with the combustion air of the heater if chlorinated or fluorinated hydrocarbon solvents (for example, trichloroethylene or freon) are used in the dip tank.

(5) Keep the temperature of the heating element low enough to keep a solvent or mixture from:

- Decomposing
  OR
- Generating excessive vapor.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-46025, filed 05/06/03, effective 08/01/03.]

SPRAY CLEANING OR DEGREASING

WAC 296-307-46030 Control liquid spray over an open surface cleaning or degreasing tank.

You must:

- Control the spray to the greatest extent feasible by:
  - Enclosing the spraying operation as completely as possible
  - Using mechanical ventilation to provide enough inward air velocity to prevent the spray from leaving the vapor area.

Note: Mechanical baffles may be used to help prevent the discharge of spray.

Reference: Spray painting operations are covered in Spray-Finishing Operations, WAC 296-62-11019.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-46030, filed 05/06/03, effective 08/01/03.]

WAC 296-307-465 Definitions.

ACGIH: American Conference of Governmental Industrial Hygienists.

Adjacent area: Any area within 20 feet (6.1 m) of a vapor area that isn't separated from the vapor area by tight partitions.

ANSI: American National Standards Institute.

Approved: Approved or listed by a nationally recognized testing laboratory. Refer to federal regulation 29 CFR 1910.7, for definition of nationally recognized testing laboratory.

WAC 296-307-465 (Cont.)

Autoignition temperature: The minimum temperature required to cause self-sustained combustion without any other source of heat.

Combustible liquid: A liquid having a flashpoint of at least 100°F (37.8°C) and below 200°F (93.3°C). Mixtures with at least 99 percent of their components having flashpoints of 200°F (93.3°C) or higher aren't considered combustible liquids.

Detearing: A process for removing excess wet coating material from the bottom edge of a dipped or coated object or material by passing it through an electrostatic field.

Dip tank: A container holding a liquid other than plain water that is used for dipping or coating. An object may be immersed (or partially immersed) in a dip tank or it may be suspended in a vapor coming from the tank.

Flammable liquid: Any liquid having a flashpoint below 100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

Flashpoint: The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested by any of the measurement methods described in the definition of flashpoint in WAC 296-307-55060.

Lower flammable limit: The lowest concentration of a material that will propagate a flame. The LFL is usually expressed as a percent by volume of the material in air (or other oxidant).

NFPA: National Fire Protection Association.

Vapor area: Any area in the vicinity of dip tanks, their drain boards or associated drying, conveying, or other equipment where the vapor concentration could exceed twenty-five percent of the lower flammable limit (LFL) for the liquid in the tank.

You: Means the employer.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-465, filed 05/06/03, effective 08/01/03.]

Resource Section
Other Hazardous Materials-Dipping and Coating Operations (Dip Tanks)

Dip Tank PPE Selection Tool

This tool can be used with the Hazard Assessment required by Chapter 296-307 WAC, Part H, which requires you to select appropriate personal protective equipment (PPE). The table lists examples of PPE that can be used to protect employees from the hazards of dipping and coating operations.

Hazard	PPE to Consider
Employees' feet may become wet with dip tank liquid	• Shoes or boots of rubber or other material that can't be penetrated by dip tank liquid • Rubber overshoes • Wooden soled shoes
Employees handle work wet with dip tank liquid	• Gloves long enough to keep liquid from entering through the top of the gloves
Employees' clothing may get wet with dip tank liquid **Employees' clothing may get wet with dip tank liquid where small parts are cleaned, plated, or acid dipped in open tanks and rapid production work is required**	• Aprons • Coats • Jackets • Sleeves **Any of the previous methods or:** • Cotton clothing, shoes or short boots, and an apron
Dip tank liquid may splash and cause damage to the eyes or face **Note:** This includes manually adding or removing chemicals from the tank.	• Tight-fitting chemical goggles • Effective face shield